

**Notice of Allowability**

Application No.

09/544,274

Examiner

Anh Ly

Applicant(s)

GEORGE, JOSEPH MULAVELIL

Art Unit

2162

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/23/2005.
2. ☒ The allowed claim(s) is/are 1,3-6, 8-12, 14-16, 18-23, 25-30, 32-39, 40-43 and 45-48 (renumbered as 1-40).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

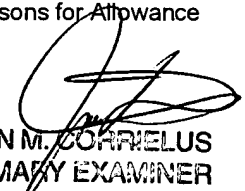
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
JEAN M. CORRIELUS  
PRIMARY EXAMINER

### DETAILED ACTION

1. This Office Action is response to Applicants' Appeal Brief filed on 06/22/2005.

### EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Francis Lammes (Reg. No.: 55,353) on 10/28/2005.

**Claim 1** is amended as the following:

A method of deleting object from a relational database, comprising:

determining a structure of the relational database, wherein determining the structure of the relational database includes referring to a database meta-information class object associated with the relational database; **wherein the database meta-information class object is generated based on a file describing the structure and delete actions for tables in the relational database;**

determining a delete action based on the structure of the relational database as described in the database meta-information class object;

generating database modification commands based on the determined delete action; and

sending the database modification commands to a relational database server, wherein the relational database server deletes the object data from the relational database based on the database modification commands.

**Cancel claim 7.**

**Claim 8:**

The first line of claim 8, "The method of claim 7", rewrite it as "**The method of claim 1**"

**Claim 9:**

The first line of claim 9, "The method of claim 7", rewrite it as "**The method of claim 1**"

**Claim 10:**

The first line of claim 10, "The method of claim 7", rewrite it as "**The method of claim 1**"

**Claim 12** is amended as the following:

A data processing system for deleting object data from a relational database, comprising:

a data processor; and

a relational database storage device, wherein the data processor determines a structure of the relational database, wherein the data processor determines the

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structure of the relational database by referring to a database meta-information class object associated with the relational database; **wherein the database meta-information class object is generated based on a file describing the structure and delete actions for tables in the relational database**, determines a delete action based on the structure of the relational database as described in the meta-information class object, generates database modification commands based on the determined delete action and sends the database modification commands to the relational database storage device, wherein the relational database storage device deletes the object data from the relational database based on the database modification commands.

**Cancel claim 17**

**Claim 18:**

The first line of claim 18, "The data processing system of claim 17", rewrite it as **"The data processing system of claim 12"**

**Claim 19:**

The first line of claim 19, "The data processing system of claim 17", rewrite it as **"The data processing system of claim 12"**

**Claim 20** is amended as the following:

A method of generating a class object for deletion of data representations of objects in a relational database, comprising:

determining a structure of a relational database;

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determining one or more delete actions based on the structure of the relational database;

generating a class object based on the determine structure and the determined one or more delete actions; and

**wherein the structure of the relational database and the one or more delete actions are determined from a file describing the structure and delete actions for tables in the relational database.**

**Cancel claim 24**

**Claim 25:**

The first line of claim 25, "The method of claim 24", rewrite it as "**The method of claim 20**"

**Claim 26:**

The first line of claim 26, "The method of claim 24", rewrite it as "**The method of claim 20**"

**Claim 27** is amended as the following:

An apparatus for generating a class object for deletion of data representations of objects in a relational database, comprising:

means for determining a structure of a relational database;

means determining one or more delete actions based on the structure of the relational database;

means generating a class object based on the determine structure and the determined one or more delete actions; and

**wherein the means for determining the structure of the relational database and the means for determining the one or more delete actions determine the structure and one or more delete actions from a file describing the structure and delete actions for tables in the relational database.**

**Cancel claim 31**

**Claim 32:**

The first line of claim 32, "The apparatus of claim 31", rewrite it as **"The apparatus of claim 27"**

**Claim 33:**

The first line of claim 33, "The apparatus of claim 31", rewrite it as **"The apparatus of claim 27"**

**Claim 34:**

The first line of claim 34, "The apparatus of claim 31", rewrite it as **"The apparatus of claim 27"**

**Claim 35** is amended as the following:

A computer program product in a computer readable medium for generating a class object for deletion of data representations of objects in a relational database, comprising:

first instructions for determining a structure of a relational database;

second instruction for determining one or more delete actions based on the structure of the relational database;

third instruction for generating a class object based on the determine structure and the determined one or more delete actions; and

**wherein the first and second instructions determine the structure of the relational database and the one or more delete actions from a file describing the structure and delete actions for tables in the relational database.**

**Cancel claim 39**

**Claim 40:**

The first line of claim 40, "The computer program product of claim 39", rewrite it as **"The computer program product of claim 35"**

**Claim 41:**

The first line of claim 41, "The computer program product of claim 39", rewrite it as **"The computer program product of claim 35"**

**Claim 42:**

The first line of claim 42, "The computer program product of claim 39", rewrite it as **"The computer program product of claim 35"**

**Claim 43** is amended as the following:

A computer program product in a computer readable medium for generating a class object for deletion of data representations of objects in a relational database, comprising:

a meta-information class for determining a structure of the relational database and one or more delete actions based on the structure of the relational database; and

a database meta-information generator class for generating class object based on the determined structure and the determined one or more delete actions, **wherein the database meta-information generator class encapsulates information identifying the structure of the relational database and the one or more delete actions into the class object.**

**Cancel claim 44**

**Claim 45:**

The first line of claim 45, "The computer program product of claim 44", rewrite it as **"The computer program product of claim 43"**

**Claim 46** is amended as the following:

A method of generating a class object for deletion of data representations of objects in a relational database, comprising:

determining a structure of the relational database;

determining one or more default delete actions based on the structure of the relational database;

receiving user input to modify the one or more default delete actions;

generating a class object based on the determined structure, the determined one or more delete actions and the user input; and



**wherein the structure of the relational database and the one or more delete actions are determined from a file describing the structure and delete actions for tables in the relational database.**

3. Claims 2, 7, 13, 17, 24, 31, 39 and 44 are cancelled.
4. Claims 1, 3-6, 8-12, 14-16, 18-23, 25-30, 32-38, 40-43 and 45-48 are allowed.

### **Allowable Subject Matter**

5. The present application has been thoroughly reviewed. Upon searching a variety of databases, the examiner respectfully submits that claims 1, 3-6, 8-12, 14-16, 18-23, 25-30, 32-38, 40-43 and 45-48 are allowed in light of the applicants' argument and in light of the prior arts of made record.

6. The following is an examiner's statement of reasons for allowance:

The claimed invention is directed to a method, a data processing system, an apparatus and a computer program product for deleting object data from a relational database and for generating a class object for deletion of data representations of objects in a relational database, and for determining a structure of relational database wherein determining the structure of the relational database includes referring to a database meta-information class object associated with the relational database and the one or more delete actions are determined from a file describing the structure and delete actions for tables in the relational database and the delete action is one of cascade delete and nullify columns delete.

The closest prior arts, Ng et al. (hereinafter Ng) of US Patent No.: 6,385,618 6,169,986 teaches relational database and schemas of relational database. Text Book: Fundamentals of Database System (The 3<sup>rd</sup> Edition) of Ramez Elmasri and Shamkant B. Navathe from Addison-Wisley (hereinafter Elmasri-Navathe) teaches active database rules and triggers as referred to Event-Condition-Action or ECA for the delete operation such as a cascade deletion, the organization or structure of the tables has to be determine in order to delete tuple. And Sarkar of US Patent No.: 6,418,448 teaches locating of multiple object relational databases and Java classes are loaded in the database server.

Thus, In combination, Ng, Elmasri-Navathe and Sarkar fail to teach ""determining the structure of the relational database includes referring to a database meta-information class object associated with the relational database and the one or more delete actions are determined from a file describing the structure and delete actions for tables in the relational database (Pages 12-13, and 16-18).

These distinct features, in conjunction with all other limitations of the dependents and independent claims render claims 1, 3-6, 8-12, 14-16, 18-23, 25-30, 32-38, 40-43 and 45-48 them allowable.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


**Contact Information**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh Ly whose telephone number is (571) 272-4039 or via E-Mail: ANH.LY@USPTO.GOV or fax to **(571) 273-4039**. The examiner can normally be reached on TUESDAY – THURSDAY from 8:30 AM – 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene, can be reached on (571) 272-4107 or **Primary Examiner Jean Corrielus (571) 272-4032**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Any response to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, or faxed to: Central Fax Center **(571) 273-8300**

  
JEAN M. CORRIELUS  
PRIMARY EXAMINER

ANH LY   
OCT. 31<sup>st</sup>, 2005